

(324.)
A

DESCRIPTION

Of a NEW-INVENTED

Stove-Grate,

SHEWING ITS

USES and ADVANTAGES

OVER ALL OTHERS;

Both in Point of EXPENCE, and every
Purpose of a CHAMBER FIRE.



L O N D O N :

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PROLOGUE

BY THE AUTHOR

THE
SCHOOL

OF
LAW

EDITION FOURTH

WITH A HISTORY OF THE

AMERICAN
SCHOOL

BY

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NEW YORK
LAW BOOK COMPANY



A

D E S C R I P T I O N

Of a New-Invented S T O V E - G R A T E.

THE State of the Weather in this
Island is so extremely variable and
uncertain, that the Inhabitants are
obliged to keep Fires to sit by near
Eight Months in the Year.

AND ever since the Duty laid upon Coals,
the Article of Fire has been so very expen-
sive in many Parts of the Kingdom, parti-
cularly in this Metropolis, that it is to be
hoped, any Attempt to make our Rooms
more warm and comfortable, and that at a
much less Expence than usual ; always free
from Smoke, and equally cheerful as with
the common Fires ; will meet with the
Favour of the Publick.

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THESE

THESE are some of the Advantages proposed by a new-invented STOVE-GRAVE, the Description and Uses whereof are contained in the following Sheets.

AND surely, if ever any Invention, discovered by a Mechanick, deserved the Attention of the Publick, this may justly lay claim to it; since not only every Family, but every Individual, is in some degree interested in it; and more especially as it is not offered as uncertain Theory, but its Uses and Advantages, over all others, have been confirmed by Trial and Experience: For one of the smalleſt Size of theſe STOVE-GRAVES has been ſet up, ever ſince the beginning of laſt Winter, in a common Room at the Inventor's House, where ſeveral curious and ingenious Persons have been to ſee and obſerve the Effects of it; and it has appeared to the Satisfaction of the beſt Judges, that this ſame Room, buiit of common Quartering, and covered with Laths and Plaifer,

	Feet.	Inches.
Long	26	: 6 : 0
Broad	13	: 0 : 0
High	10	: 6 : 0

with a Pair of large folding Doors at one End,

End, and a Door opening to the Stair Case at the other End, in which four or five Pecks of Coals had usually been consumed every Day in a common Grate and Chimney, has been kept warm, ever since the New Stove was erected, with no greater Quantity than one Peck of Coals a Day; and with this singular Advantage, that the Warmth is diffused, more regularly and uniformly, over the whole Room, than it was before.

THOSE who will take the Trouble of calling, will be able to form a more distinct Idea of the Construction and Use of this Machine, than can be conveyed by Writing: But as many People have neither the Curiosity or Opportunity for ocular Inspection, I shall give a particular Description of it, as well as of all the other Machines, that have been contrived for the like Purposes; and it will appear, by a fair and impartial Comparison, that this is attended with greater Advantages, and fewer Inconveniences, than any that has ever yet been offered to the Publick.

BUT, for the better understanding of what follows, it will be necessary to explain some of the Properties of Air and Fire.

T H E chief Properties of Air, are Fluidity, Gravity, and Elasticity.

First, **T H E** Air is a Fluid, consisting of Parts which have not any sensible Attraction or Cohesion betwixt themselves ; but of such a Shape or Form, as to glide one over another, and yield to the slightest Impression : Of this we need no other Proof, than the Ease and Freedom with which Animals breath this Element, and pass through it, without any sensible Resistance.

Secondly, **T H A T** the Air does gravitate, or act upon inferior Bodies by its Weight, is demonstrable by a great many Experiments, and particularly the Barometer, which by the rising and falling of the Mercury, shews the greater or lesser Weight of the Column of Air incumbent upon it.

Thirdly, **N O R** is the Elasticity of the Air less demonstrable than either its Fluidity or Gravity.

A I R is an elastick Body, for if it be confined or compressed within a less Space than its natural State requires, it will, the Moment the Restraint is removed, dilate and expand itself so as to fill the same Space as before ; and

and that too with such Force, as to break in Pieces the Glass or Earthen Vessel that contained it ; as may be seen by the common Experiment of a Bottle full of common Air, strongly cork'd, and put under the Receiver on the Air-Pump, when the Air surrounding the Bottle is pump'd out. But what is particularly remarkable with reference to the Subject we are treating of, is, That Air is rarified by Heat, and condensed by Cold ; First, Air rarified and expanded by Heat, becomes specifically lighter than it was before, and will ascend in Air of greater Density : As Matter specifically lighter than Water, Cork for Instance, if placed at the bottom of an empty Vessel, will, if Water be poured into the Vessel, ascend above the Surface of the Water ; so rarified Air will rise in common Air till it comes to Air of equal Weight, or is by Cold reduced to its former Density.

For the same Reason, if a Fire be kindled in an open Place, the Heat thereof will rarify the next circumambient Air ; and that which is more remote being heavier, will press every where, and in all Directions, upon the Air that is rarified, and drive it to the Fire ; the Flame and Sparks whereof will, together with the rarified Air, ascend in a

conic

conic Form, like the Flame of a Candle, in a trembling Motion, as it is more or less acted upon by the Pressure of the cold Air : And the Reason why the Flame is more contracted at the Top than Bottom, is, that the Heat at Top being less intense, the next adjacent Air is less rarified, and the gross Air confines it more.

THEREFORE, when a Fire is lighted in a Chimney, the Heat rarifies the Air over and next the Fire, and makes it rise in the Funnel, and the common Air in the Room immediately supplies its Place, is rarified in its turn, and rises also.

THIS Motion being thus generated, is continued by small Inlets of Air, through the Doors and Windows of the Room ; and the larger the Fire, the greater will be the current of Air through their Crevices. If the Doors and Windows are so well fitted in their Frames, that all the Inlets together cannot supply so much Air as is wanted to carry off the Smoke, it will then hang about the Fire, gradually diminish, and at length totally extinguish it.

VARIOUS are the Improvements that have been made in the Construction of Chimneys,

Chimneys, to increase the Degree of Heat, to prevent Smoke, and to save in the Article of Fuel.

AND notwithstanding the many Attempts to remedy the Defects in one or other of these Respects, the same have hitherto come short of the End proposed. Take the Article of Smoke for Instance: No Builder of Character will pretend to insure all the Rooms in a new-built House from smoking, appears from this, that they generally at first finish the Chimney Tops with what they call Roundings, and if, upon Trial, those do not answer, they either Hovel, or fix Earthen Pots, like a hollow Cylinder, or plant Tin Tubes on the Tops, not much unlike Organ-Pipes inverted; all which Methods, not only spoil the Symmetry of the Building, but what is still worse, they often leave the Chimnies as Smoky as they were at first, after a considerable Sum has been spent on a Cure.

IN order to remedy all, or some of the Inconveniences already mentioned, a great Variety of Chimnies, Stove-Grates, and Close-Stoves have been invented. I shall describe some of the principal ones that have fallen under my Observation; and shall
B endeavour,

endeavour, as I go along, to point out their Advantages and Defects.

FIRST, Mons. *Gauger* has described seven sorts of Chimnies, which, however, all agree in general as to the Construction and Disposition of the principal Parts.

HIS Manner of Performance is by Plates of Iron, Copper, and Brafs, placed in the Chimney, after its being prepared to receive them, at four Inches from the Back, Jambs, and Hearth, with a Communication to the external Air; which first entered under the Hearth-Plate, and made several Turnings and Windings, through Partitions between the inside of the Chimney, and those Plates representing, as it were, a re-curved Canal; one End whereof joins the outward Air, and the other comes out of the Top of one of the Jambs of the Chimney. The Use and Intent of these Chimnies is only for burning of Wood, the Heat wherof is more diffused than that of Turf or Peat.

THE Invention was extremely ingenious, the Room was warmed, in all its Parts, with great Equality; cold Air was prevented rushing through Crevices; the Funnel was supplied by a Trap-Door, or Bellows, upon the

the Hearth-Plate ; and much less Wood served to make a Fire : but the Expence was found to be so great, especially in old Chimnies, that they never came into much use, and are now entirely laid aside : The upright Heat was likewise all lost in all those Chimnies.

SECONDLY, the ingenious Dr. *Desaguliers* gives the Construction of two kinds of Chimnies ; one for burning Turf and Peat upon the Hearth, and the other for Sea-Coal in a Stove-Grate, made in a particular Manner.

II
IN the Description of the First, he says, That in Chimnies where Wood is burnt the Cavities behind the Back and Sides, after the Manner that the *French* Author directs, are very useful ; but where you have the Heat very strong, it will be proper to make the Cavities as near the Fire as possible ; and tho' the Course of the Air will be shorter, yet the great Heat it acquires in that Case will make Amends for the Shortness of the Passage.

THE Shape and Manner of the Chimney is the same as directed by Mons. *Gauger*, with this difference, that the Doctor's has

no Cavity under the Hearth ; only a divided Box made of Plate-Iron, upon which the Fire is placed, and an horizontal Cavity behind the Back, faced with Plate-Iron ; so low, that the Fire lies against it : Through this Preparation comes a Stream of external Air, in several Turnings and Windings, and from thence is carried up a Passage within the Brick-Work in one of the Corners, as high as the Mantle-Piece ; from the Corner it is brought forward to the under side of the Mantle-Piece, where it makes several Turnings in a Tin Canal, from which it is at last convey'd into the Room.

HE likewise recommends the Trap-Bellows in this Construction of Stoves.

THE Construction of the Second Sort consists of a Grate of a particular Make, with a Box of Plate-Iron behind the Back, that has only three Cavities ; one End communicates with the outward Air to bring it through those Cavities, obliquely, to the Corner in the Brick-Work ; from thence it is brought forward in the upper part of the Jamb, quite into the Tin Canal, behind the Mantle-Piece, as in the last Construction ; but the same Inconvenience attends both these sort of Chimnies, that the upright Heat,

Heat, which is at least three-fourths of what proceeds from the Fire, is almost wholly lost ; as it is in all the open Fire-Places.

THIRDLY, the *Dutch* and *German* Stoves, which are very different.

THE *Dutch* Stove has a Flue proceeding from the Top, which is sometimes bent downwards, and then goes into the Chimney, through a false Back, at about four Inches from the true Back : That Space has a Communication with the Funnel, and all the other Parts of the Chimney are wholly closed up.

AND there are others which have the Flue straight upward, that goes into the Chimney, and all the Funnel closed up round the Flue of the Stove. The First Sort, in my Opinion, is the best ; for there is not so much of the upright Heat lost as in this, and the Chimney cannot so readily smoke ; because the Space between the false Back and the true Back obstruct, in some degree, the Passage of the Air down the Chimney. Both these sorts have a small Iron Door into the Room, which in some degree changes the Air as it flows to that

Open-

Opening ; part of which goes off with the Smoke, and its Place is supplied by the entering Air from Doors, Windows, and Crevices. But as there is so small a Change of Air, the Room will soon be warm, the Chimney being wholly closed up ; very little Air is required to supply the small Door of the Stove, and that only can enter at the Door or Windows of the Room : Little Fuel serves, for almost all the Heat is saved. This small change of Air makes these Stoves wholesomer, or at least pleasanter, than the *German* Stoves, but there is little sight of the Fire ; and no other Use can be made of it but to warm the Room : And if any ill Smell should happen in the Room, it is not easily carried off, by Reason of the slow change of Air at the little Iron Door ; and the Room is always somewhat suffocating, especially to those who are not accustomed to it.

THE *German* Stove is not unlike a Chest for Cloaths set upon one End, and is fixed into the Wall, with the Top turned outwards, or into another Room, which open and shut as there is occasion for making and mending the Fire : it warms a Room all over in a very little Time, with little Fuel to make a Fire ; no fresh Air can enter the

Room

Room if the Door be left open, no more than it would in an open Oven, because there is not the least Discharge of Air in the Room. But there is not any Appearance of Fire to be seen in these Stoves, and they who used them were obliged to breathe the same unchanged elemental Air, mixed with that inspired by all the Company.

FOURTHLY, the Chimney in the House of Lords, which was designed by way of an Improvement upon the Sieur Gauger's Chimnies.

FOR FIRST, the outward Air, from below the House, in the Passage, enters under the Iron Plate, (commonly called the Hearth-Plate) which is prepared to receive it into a re-curved Canal, and from thence passes up the back Plate of Iron, in the like Turnings and Windings, near to the Top, where it is divided, and enters into two Tubes of Copper, one placed on each side of the Funnel, of a sufficient Length to appear above the Cornish; there they are joined to other Conveyances; one of which is carried round the Throne, and ends over-against the Fire; and the other Conveyance is continued to the Window, aboye the Cornish, made of Tin, in form of a right-angled Triangle,

Triangle, and is perforated to let out the Air. There is likewise a Valve in each of these Copper Pipes or Tubes, placed at a considerable distance from the Fire, to open and shut at pleasure, by a Thumb-Latch ; which being shut, imprisons the Air in its Passage upwards, until it be hot, and when opened, discharges this warmed Air near the Cieling, through those perforated Conveyances.

ACCORDING to the Construction of this Fire-Place, it is next to an Impossibility to warm that House with the greatest Fire that can be made in it : For all the upright Heat is lost, occasioned by the continual Current of Air coming in at the Doors and Crevices, which forcibly drives almost all the Heat up the Chimney.

Secondly, THE Streams of cold Air which enters under the Hearth and Back Plates, (where a large Stove-Grate stands) in its various Turnings and Windings, behind these Plates, and through those Tubes, is but very little warmed in its Passage above the Fire in the Conveyances to the Cieling ; and it cannot receive any Heat from the Hearth-Plate, unless the Fire was made upon it, as mentioned before ; for the bottom

Bars of the Stove-Grate are at so great a distance from the Iron Hearth-Plate, that the Fire, with its downward Heat, cannot reach it; and not above Eight superficial Feet of the Back-Plate is warmed by the Fire, and considering the distance from the hot part, to where the warm Air is discharged into the House, nothing is clearer, than that it cannot receive any considerable degree of Heat, in its Passage through the Copper Pipes, that convey it to the Cieling; and where it is suspended, and mixes slowly and imperceptibly with the colder Air in the lower part of the House, so that little or no Warmth can be obtained by this Conveyance.

Thirdly, F R O M hence it appears, that it would have been of much greater Use to have discharged the hot Air immediately from the hot Iron Back-Plate into the Room; its Effects in that Case would have been sensibly felt, and it would then have ascended naturally, without the help of Pipes, and warmed the circumambient Air as was intended; and likewise would have supported the Fire, without the Assistance of any Air from the Doors and Crevices.

F I F T H L Y, Stoves, placed at the End
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of long Rooms, Coffee-Houses, and Tradesmen's Shops, warm the Room in a little Time; but the Smoke and upright Heat are both conveyed thro' one and the same Tube of Iron, jointed in several Pieces, to bring them round the Wall and Turnings of the Chimney, where they are discharged: but never fail to send out some part of the Air impregnated with Sulphur, so as to occasion a disagreeable Smell, and often, Head-achs and Lowness of Spirits to those that are not accustomed to these Stoves.

SIXTHLY, The *French* Stoves are much the same as the *Dutch*; and I am informed, that they have many from *Holland* and *Germany*; but they have another Sort, which is the Mode at present; it resembles an old-fashion'd low Chest of Drawers with a flat Top, and has swelling or rising Mouldings on all Sides, which represent the Drawers: It is composed of several Pieces of burnt Earth, in the manner of our Earthen Ware, and is placed upon a Frame of Iron at Bottom, and all the Parts are luted together to complete the Body: It is likewise bound about with two Iron Belts to keep all tight, and has a little Door at one End like a *Dutch* Stove, where the Fire is put into it; it projects into the Room some distance

distance from the Chimney, and gives Heat from the four Sides as well as the Top ; There is a Flue proceeds from the back Part, and an Iron Pipe fixed upon it, to reach the Chimney ; which carries the Smoke up the Funnel, and the Chimney is closed up all round the Iron Pipe ; it is on the same Principles as the *Dutch Stove*, and is subject to many more Inconveniences, which are not necessary to be mentioned.

SEVENTHLY, The *Pensilvanian Stove-Grate* comes lastly to be considered, which is a curious Invention indeed, contrived about Twelve or Fourteen Years ago, and particularly described by Mr. *Franklin* of *Philadelphia*, in a Treatise intitled, *An Account of the New-Invented Pensilvanian Fire-Places*, printed at *Philadelphia* in 1744. I have lately examined one that was made in that Country, all of cast Iron, which I believe to be the only one in *England* ; and at the same time I saw a perfect Model of it, which discovered the whole Work at one View.

THIS Stove-Grate must infallibly cure most of the Inconveniences, with which the other sorts before-mentioned are attended, if the Smoke Passages can be kept clean.

You have a full Sight of the Fire, nor does it lose any of the upright Heat, as in common Fire-Places, and smoky Chimnies will be often cured by it. This Stove has likewise the Advantage of a constant Supply of fresh Air, coming in warm through a Canal, in the Manner before described by Dr. *Desaguliers*, with this difference, that here the warm Air comes out on each Side of the Stove, and is better adapted to warm the lower Air of the Room, than if it came out higher in the Chimney.

IN this Machine the Smoke first ascends, and then passing over the Iron Plates that compose the warm Air Box, descends to the Bottom, where it passes under a false Back, about three or four Inches from the true Back of the Chimney ; then ascends a second time up the Funnel of the Chimney, and passes out at the Top. The Chimney is closed up on all Sides, between the false Back and Breast of the Chimney, except only in one Place, where is an Opening, with an Iron Door, large enough for a Chimney-Sweeper to creep through, to sweep the Funnel ; but at all other times this Door is kept shut. There is also a Register fixed in the Smoke-Passage, to give more or less Vent, as shall be required.

THE whole is a compleat Piece of Machinery, and was first intended for burning of Wood, which is the common Fuel of that Country; but, for that Reason, is not so well adapted to burn Sea-Coal, whose bituminous Quality would soon close up the narrow Smoke-Passage, and would often require cleaning, and become very troublesome, it being difficult to come at the Smoke-Passage; for if there be a Trap-Door made upon the Hearth, you cannot clean the Smoke-Passage any farther than to the Register, and there is no coming at the upper part without lifting up the Top of the Machine, which is always luted down, and fastened with Screw Nuts.

THE Defects and Inconveniences that I have occasionally pointed out, in the Chimneys and Stoves already described, put me upon contriving a new Machine-Grate, which, upon Trial, answers all the Ends that I proposed by it.

IT is built, indeed, and constructed upon almost the same Principles with the *Pen-sil-vanian* Stove, but with greater Advantages; for instead of the narrow Passage for the Smoke in the *Pen-sil-vanian* Stove, there is a Chamber made in the Brick-Work which effectually warms

warms the Air-Box, and is all covered over like an Oven, except a narrow Passage made of Plate-Iron, with a Register in it, which has a Handle into the Room, and may be turned upon its Axis to such a Degree of Vent; as either to support or diminish, or even to extinguish the Fire. The Register is so contrived, that it will probably want no cleaning in two or three Years; but if it should, by lifting up the Chimney-Sweeper's Door, it is done in one Minute; and is equally adapted to burn Coals or Wood, with more Safety and Ease than in a common Fire-Place. The Chamber behind the Stove is cleaned when the Chimney is swept, by taking out a Piece of concealed Iron, rabited into the Brick-Work at the Side of the Stove, and always whiten'd over with the Brick Back. The Chamber behind is of greater Use than warming the Air Box; for being almost all closed up, it is not only Proof against the Influence of the Houses and Chimnies about it that stand higher, but even against Eddy, or Whirl-winds, if they should come down the Chimney; the Force whereof is broke by the Top of the Chamber; and what comes through the small Opening where the Register is placed, is immediately expanded and loses its Force.

T H E whole of my Machine is less complex

plex, and of more easy Construction than any others I have mentioned, and which is all I have ever seen or heard of ; but has Advantages besides that, which no former Invention can pretend to.

First, IT warms the Room equally all over, and the Fire appears the same as in a common Stove-Grate ; yet any Place in the Room will be as warm as that by the Side of the Fire.

FOR this there is ocular Demonstration, because Thermometers placed in the remotest Parts of the Room will not differ above one Degree, (a Difference which every body knows has scarce any Effect) from one placed by the Side of the Chimney.

Secondly, THE Chimney is so intirely closed up, that if you sit near the Fire-Place, there is not the least cold Air from the Door, Window, or any Crevice, that can offend you, as in common Fire-Places ; where, at the same time that you are burnt before, you are ready to freeze behind : but, on the contrary, the warm Air here goes out at the Door when opened, and will make you sensible of its Approach at Four or Five Feet distance before you enter the Door.

THE

THE Doors, indeed, ought to be kept shut ; because otherwise the warm Air will be wasted, as with common Fires ; but there is no manner of Occasion for Skreens of any sort, because the Fire cannot hurt the Face ; neither can the cold Air offend the Back, as in common Rooms, where there is a common Stove-Grate, and a large Draught up the Chimney.

Thirdly, To be soon and agreeably warmed, is not the only Advantage we have from this Invention ; but we are better warmed, at less than one Third of the usual Expence, at a moderate Computation. When the Mercury in my Thermometer, that was placed without Doors, stood the last Winter at Four Degrees below the Freezing Point, a Peck of Coals (*i. e.* the 144th Part of a Chaldrone,) was sufficient to warm the Room for the whole Day, from Eight in the Morning to Eleven at Night. During all that Time the Mercury within the Room stood from 60 to 64 Degrees ; much the same Degree of Heat with that of the 25th Day of last June, 1752, at Two o'Clock in the Afternoon ; and, when that Observation was made, the Weather was as warm as usual at that Time of the Year.

BUT before I set up this Stove, which is one of the smallest, there was seldom spent, in the Room, less than a Bushel of Coals, and sometimes more, in one Day, according to the Degree of Cold ; and then we were obliged to have a Skreen to keep off the cold Air from the Backs of those who sat near the Fire ; and only that Part of the Room was warm which was nearest the Fire.

THE Air that enters the Room, through the Iron Canal of the Air-Box, is both fresh and warm ; and computing the Swift-ness of its Motion with the Area of its Passage, it will appear, that Ten Barrels, or near 60 Cubic Feet of Air is hourly introduced from the external Air, if the Door of the Room be shut.

THIS warm Air comes into the Room with such Rapidity from the hot Iron Canal, that it turns several Paper Wheels with great Velocity, which are placed near the Opening that lets it into the Room. But as soon as the Door of the Room is opened, all the Wheels stand still ; which proves what has been said before, That much warm Air is wasted in opening the Door ; because the warm, or rarified Air, rushes through the

cold Air with great Force: And the cold Air that comes in at the Door, being an over-balance to the Air entering from the hot Iron Canal of the Stove, entirely stops it from coming into the Room while the Door is open.

In like manner, if the Door of the Room be shut, and the Register that is fixed in the Smoke-Passage be turned so near as almost to shut it up, which may be done when the Coals upon the Fire are burnt to a Coke, then the whole Heat of the Fire will be forced into the Room, the warm Air will be stopt from coming through the hot Canal, and the Paper Wheels will stand still, as they did when the Door of the Room was open.

This may seem a little unaccountable, but, when considered, it is plain, that the warm Air from the hot Canal cannot come into the Room, which is already full of Air, and in a perfect State of Rest, because there is no Passage for it to go out at; the Register having closed up the Funnel, and the Doors and Windows of the Room being shut.

THE Room, in this Case, will soon become suffocating, in the manner of a German
Stove

Stove Room, and does exactly point out the Difference between that Stove and mine.

WHEREAS, on the contrary, when the Doors of the Room are shut, and the Register gives a proper Vent to the Fire, the warm Air, in this Case, is at Liberty to act as before, by warming the circumambient Air in its Passage from the Mantle-Piece to the Cieling, where it mixes slowly and imperceptibly with the groffer Air of the Room, which, in its turn, flows towards the Stove and Fire ; part whereof feeds the Fire, and passes off with the Smoke ; and the other part, after being rarified by the Heat of the Stove and Fire, ascends by the Mantle-piece to the Cieling, as it did before ; repeating the like Circulation as long as there is any Heat in the Stove. By which it appears, that the warm Air that comes from the hot Iron Canal of the heated Air-Box, is sufficient to support the Fire, and carry off the Smoke, without the Assistance of any Air from the Crevices of the Doors and Windows of the Room.

By this Means, the Air in the Room is continually changed, and an Advantage gained that could never be obtained by any former Contrivance of the Kind ; that at all

Times the Air in the Room is as wholesome as the external Air ; and, in some Respects, more so : For it is apparent, that the Air issuing into the Room through a hot Canal of Iron, can never acquire any noxious Quality ; and, on the contrary, in damp Weather, when the Air is replete with Moisture, and noxious Particles, it will be purified in its Passage, and the Moisture and Vapours will be condensed, fall, and stick upon the Sides of the hot Canal.

U P O N this, as well as other Accounts, this Stove will be extremely useful in Hospitals, and the Rooms of sick Persons, with great Advantage to the Patients : But this I submit to those who are better qualified to judge of such Matters.

Fourthly, I N Common Stoves and Chimneys, the upright Heat (which has been computed to be Three Fourths of the whole) is intirely lost, as to the Purpose of warming the Room, or those that are in it. On the contrary, in this Stove-Grate, a very inconsiderable part of the Heat ascends with the Smoke, and all the rest is diffused gradually, and equally, over the whole Room.

Fifthly, T H I S Fire-Place, thus prepared, prevents

prevents Smoke so effectually, and so certainly, in all Degrees and Variations of Wind and Weather, that the Inventor is willing to give his Machine, *Gratis*, if ever the least Smoke is perceived in any Room where it is erected; unless it may happen at the first lighting of the Fire, before the Air in the Funnel is put in Motion; but I have never yet seen that happen.

THERE is no Occasion for Chimney-Boards in Summer, for by turning the Register, the Air is shut out; so that both in Summer and Winter, the Furniture and Gilding, is preserved from Smoke and damp Air; which are the chief Causes of the one and the other's being spoiled.

Sixtly, IT will be obvious to every Person, who examines the Construction of this Machine, that the Chimney will not require sweeping in less than two or three Years; and that it is morally impossible the Chimney can ever take Fire.

Seventy, IT has been already observed, that no part of the current of Air, that passes continually through the Fire, is supplied from the Doors, Windows, or Crevices of the Room: For the same Reason, the Candles, in all sorts of Weather, will burn clear; the Light will be pleasant, equal, and steady; and there will be a considerable Saving in that Article.

Eightbly, WHEN the Room is thoroughly warmed in the Day-time, it will cool but a few Degrees during the Night; and by shutting up the Fire-Place over Night, and excluding the external Air, the Fire will be found in the Morning without any sensible Diminution, ready to blaze out, by the Addition of a Stick of Wood, or a few Coals; which every body knows is an Advantage, that never could be obtained in common Chimnies, with a Coal Fire, without a great Expence, and much Danger.

THESE, and many other Advantages, that would be tedious to enumerate at present, will be found to result from this useful Invention. Several of the Stove-Grates are already set up; and Orders given for the erecting others in many Houses in *London* and the Country.

SOME are of Cast Iron, in its plain, natural Colour; and others have a Case, richly ornamented, that is put on, and taken off, at Pleasure. The Inventor hopes he shall be permitted to publish the Names and Places of Abode, of those Noblemen and Gentlemen, who have encouraged this undertaking.

By this Method it will be in the Power of those who incline to become Purchasers, to inform themselves of the Truth of every Particular, by Persons of undoubted Credit
and

and Veracity ; and to know, with Certainty, what they are to expect, without laying out their Money, upon what they might suppose, an unexperimented Project ; the Success whereof might otherwise be uncertain.

T H E R E are Three Sizes of these Stove-Grates, adapted to the Dimensions of the Rooms where they are set up. They are all made of Cast Iron, which will endure longer, and come much cheaper, than if they were made of wrought Iron.

	Ft. In. Pts.
The smallest Size,	High 2 3 0
Pr. 7l. 7s. set up	Broad in Front 1 5 0 } over all
	Depth from Front to Back 1 0 0

The Space that contains the Fire within this Stove,	
Broad in Front	1 3 0
Depth of the Bars	0 5 6
From Front to Back	0 5 6
Middle Size,	High 2 4 6
Pr. 10l. 10s. set up	Broad in Front 1 9 0 } over all
	Depth from Front to Back 1 0 0

The Space that contains the Fire within this Stove,	
Broad in Front	1 7 6
Depth of the Bars	0 8 0
From Front to Back	0 8 0
Largest Size,	High 2 10 0
Pr. 13l. 13s. set up	Broad in Front 0 2 4 } over all
	Depth from Front to Back 1 4 6

The Space that contains the Fire within this Stove,

Broad in Front	2 3 0
Depth of the Bars	0 10 6
From Front to Back	1 0 0

I FIND, by my own Experience, that the smallest Size of these Stoves, will warm a Room of Twelve or Fourteen Foot Square,

or the largest Dressing Closet. The Middle-sized Grate will warm a Room of 20 Feet + 26, and 12 or 14 Feet high. The largest Size will warm a Room of 50 Feet by 25, and about 20 or 22 Feet high.

As I have not advanced any thing, but what I have proved from my own Experience, I shall omit what might be said from the Testimony of others, to Time, and the real Merit of the Machine; which, in all Respects, will answer for itself. For the Beginning of this Attempt was founded upon Theory and Mechanick Principles, supported by Observation and Experience of what had happened before.

But had not the same Observation and Experience, likewise confirmed the Use of this, and all the Advantages mentioned, I should not have offered it to the Publick.

Jermyn-Street, March 22, 1753.

A D V E R T I S E M E N T.

THE Inventor of this Stove-Grate has contrived a Stove for a Laundry, which answers all the Ends desirable, without any other Fire, and at one Third part of the usual Expence that keeps a Fire in the common Way. It is moveable to any part of the Room; and stands on a boarded Floor with the greatest Safety. It likewise may be placed in a Room where there is no Chimney, and will serve for Airing large Rooms, far preferable to the common Braziers; it warms a Room sooner, with greater Safety, and much less Expence: For Half a Bushel of Coals will go farther than a Bushel of Charcoal in the common Way.

F I N I S.

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